Agglomerated Welding Flux BF 3

Flux type: Aluminate-Basic
Classification: ISO 14174 – S A AB 1 67 AC H5*

Characteristics:
BF 3 is an agglomerated aluminate-basic flux with high current-carrying capacity, specially designed for the welding of windmill towers using tandem – arc. It is also suitable for joint welding of unalloyed and low alloy structural steels, pipe steels, boiler steels and fine grain steels. The flux is suitable for single and multilayer welding of longitudinal, circumferential and fillet welds. It can be used for single, tandem, twin and multi wire welding systems. Excellent slag removal in narrow groove welds of thick wall sections. Typical characteristic of this flux is a medium Mn and Si pick up as well as very low diffusible hydrogen level. It is suitable for both AC and DC welding.

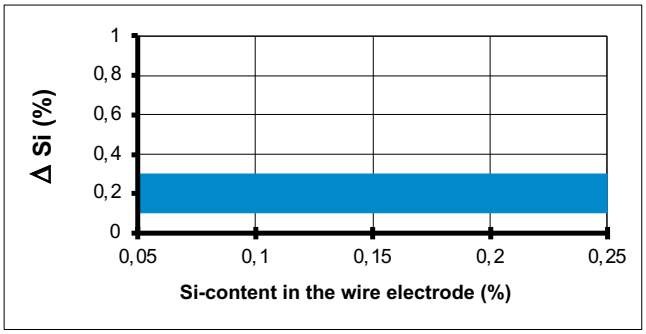
Application:
Joint welding of no alloy and low alloy structural steels acc. to. EN 10025. Fine grain steels with Ys < 420 MPa and boiler steels such as P265GH (H II) and 16Mo3.

Characteristic chemical Constituents:

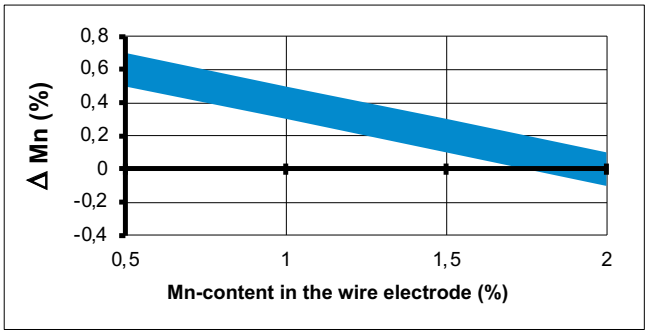
$SiO_2 + TiO_2$	$Al_2O_3 + MnO$	CaO + MgO	CaF_2
20 %	40 %	25 %	10 %
Basicity according to Boniszewski: ~1.9			

Metallurgical behaviour acc. to ISO 14174 type of current DC:

Pick-up Silicon



Pick-up/Burn-out Manganese



Flux density: 1.1 kg/dm³ (l)
Grain size acc. to ISO 14174: 2–20
Current-carrying capacity: up to 1,500 A (DC or AC) using one wire

* Diffusible hydrogen content H5: determined in deposited metal acc. to the method described in ISO 3690 Type of current DC; redrying conditions 200–250 °C

All-weld metal multiple pass classification of wire-flux combinations:

Wire electrode		Test assembly ISO 15792-1: type 1.3	AWS A5.17M/5.23M	AWS A5.17/5.23
ISO 14171-A	AWS A5.17/.23			
BA-S1	EL12	ISO 14171-A: S 38 2 AB S1	F48A2-EL12	F7A0-EL12
BA-S2	EM12(K)	ISO 14171-A: S 42 4 AB S2	F48A4/P4-EM12(K)	F7A4/P4-EM12(K)
BA-S2Si	EM12K	ISO 14171-A: S 42 4 AB S2Si	F48A4/P4-EM12K	F7A4/P4-EM12K
BA-S3Si	EH12K	ISO 14171-A: S 46 4 AB S3Si	F55A4/F48P4-EH12K	F8A4/F7P4-EH12K
BA-S2Mo	EA2	ISO 14171-A: S 46 4 AB S2Mo	F55A4/P4-EA2-A2	F8A4/P4-EA2-A2

Two-run classification of wire-flux combinations:

Wire electrode		Two-Run / ISO 15792-2: type 2.5	AWS A5.17M / 5.23M	AWS A5.17 / 5.23
ISO 14171-A	AWS A5.17 / .23			
BA-S1	EL12	ISO 14171-A: S 2T 2 AB S1	F43TA2-EL12	F6TA0-EL12
BA-S2	EM12(K)	ISO 14171-A: S 3T 2 AB S2	F49TA2-EM12(K)	F7TA0-EM12(K)
BA-S2Si	EM12K	ISO 14171-A: S 3T 2 AB S2Si	F49TA2-EM12K	F7TA0-EM12K
BA-S3Si	EH12K	ISO 14171-A: S 4T 3 AB S3Si	F55TA3-EH12K	F8TA2-EH12K
BA-S2Mo	EA2	ISO 14171-A: S 4T 2 AB S2Mo	F55TA2-EA2	F8TA2-EA2

Chemical composition of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:
(characteristical values in wt. %)

Wire electrode		C	Si	Mn	Mo	Ni	Cr
BA-S1	EL12	0.05–0.08	0.2–0.4	0.9–1.3			
BA-S2	EM12(K)	0.05–0.08	0.2–0.4	1.4–1.8			
BA-S2Si	EM12K	0.05–0.08	0.2–0.5	1.4–1.8			
BA-S3Si	EH12K	0.05–0.08	0.2–0.5	1.6–2.0			
BA-S2Mo	EA2	0.04–0.08	0.2–0.4	1.3–1.7	0.5		

Mechanical properties of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:
(characteristical values)

Wire electrode		Heat treatment	YS MPa	UTS MPa	Elong. %	Impact ISO-V (J)				
						± 0 °C +32 °F	-20 °C -4 °F	-40 °C -40 °F	-51 °C -60 °F	-73 °C -100 °F
BA-S1	EL12	U	>400	>510	>24	>80	>47			
BA-S2	EM12(K)	U	>420	>500	>22	>100	>70	>50	>27	
		S*	>400	>490	>22	>110	>80	>60	>30	
BA-S2Si	EM12K	U	>430	>520	>22	>100	>70	>50	>27	
		S*	>400	>490	>22	>110	>80	>60	>30	
BA-S3Si	EH12K	U	>470	>560	>22	>120	>90	>70	>35	
		S*	>400	>490	>22	>130	>100	>80	>40	
BA-S2Mo	EA2	U	>490	>570	>20	>100	>80	>30		
		S**	>470	>570	>22	>110	>70	>30		

Post Weld Heat Treatment: * 580 °C / 15 h; ** 620 °C / 15 h

Packaging: 25 kg PE-Bags or 500–1,250 kg Big Bags
Storage and redrying: Unopened originally packed flux bags can be stored up to one year in dry storage rooms after date of delivery ex factory.
Redrying conditions specific to the flux:
200–250 °C effective flux temperature